SEQUENCE LISTING

<110> The Massachussetts General Hospital Corporation
       Gardella, Thomas J.

<120> Conformationally Constrained Parathyroid Hormone (PTH) Analogs

<130> 0609.516PC01

<140> PCT/US2004/022830
<141> 2004-07-16

<150> US 60/487,589
<151> 2003-07-17

<160> 27

<170> PatentIn version 3.2

<210> 1
<211> 14
<212> PRT
<213> Artificial sequence

<220>
<223> Peptide

<220>
<221> misc_feature
<222> (1)..(1)
<223> X is an Alpha-Helix Stabilizing Residue

<220>
<221> misc_feature
<222> (2)..(2)
<223> X is Trp, Bpa, Arg or Val

<220>
<221> misc_feature
<222> (3)..(3)
<223> X is an Alpha-Helix Stabilizing Residue

<220>
<221> misc_feature
<222> (8)..(8)
<223> X is Met or Nle

<220>
<221> misc_feature
<222> (10)..(10)
<223> X is Gln, Deg or Asn

<220>
<221> misc_feature
<222> (11)..(11)
<223> X is Har or Leu

<220>
<221> misc_feature
<222> (12)..(12)

<223> X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221> misc_feature
<222> (14)..(14)
<223> X is an Alpha-Helix Stabilizing Residue, Trp, Tyr or His

<400> 1

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa
1   5   10

<210> 2
<211> 13
<212> PRT
<213> Artificial sequence

<220>
<223> Peptide

<220>
<221> misc_feature
<222> (1)..(1)
<223> X is an Alpha-Helix Stabilizing Residue

<220>
<221> misc_feature
<222> (2)..(2)
<223> X is Trp, Bpa, Arg or Val

<220>
<221> misc_feature
<222> (3)..(3)
<223> X is an Alpha-Helix Stabilizing Residue

<220>
<221> misc_feature
<222> (8)..(8)
<223> X is Met or Nle

<220>
<221> misc_feature
<222> (10)..(10)
<223> X is Gln, Deg or Asn

<220>
<221> misc_feature
<222> (11)..(11)
<223> X is Har or Leu

<220>
<221> misc_feature
<222> (12)..(12)
<223> X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<400> 2

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys
1   5   10

```
<210>  3
<211>  12
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Trp, Bpa, Arg or Val

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Met or Nle

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<400>  3

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa
1               5                   10


<210>  4
<211>  11
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide
```

```
<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Trp, Bpa, Arg or Val

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Met or Nle

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<400>  4

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa
1               5                   10


<210>  5
<211>  10
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Trp, Bpa, Arg or Val

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
```

```
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Met or Nle


<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Gln, Deg  or Asn


<400>  5

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa
1               5                   10



<210>  6
<211>  21
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Met or Nle

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>  misc_feature
```

```
<222>  (14)..(14)
<223>  X is an Alpha-Helix Stabilizing Residue, Trp or His

<220>
<221>  misc_feature
<222>  (19)..(19)
<223>  X is an Alpha-Helix Stabilizing Residue, Lys, Arg or Glu

<220>
<221>  misc_feature
<222>  (21)..(21)
<223>  X is Tyr or Met

<400>  6

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


Ser Val Xaa Arg Xaa
            20



<210>  7
<211>  20
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Met or Nle

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu
```

```
<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly


<220>
<221>  misc_feature
<222>  (14)..(14)
<223>  X is an Alpha-Helix Stabilizing Residue, Trp or His


<220>
<221>  misc_feature
<222>  (19)..(19)
<223>  X is an Alpha-Helix Stabilizing Residue, Lys, Arg or Glu


<400>  7

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


Ser Val Xaa Arg
            20



<210>  8
<211>  19
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide



<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue


<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa


<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue


<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn


<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Met or Nle


<220>
```

```
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>  misc_feature
<222>  (14)..(14)
<223>  X is an Alpha-Helix Stabilizing Residue, Trp or His

<220>
<221>  misc_feature
<222>  (19)..(19)
<223>  X is an Alpha-Helix Stabilizing Residue, Lys, Arg or Glu

<400>  8

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


Ser Val Xaa



<210>  9
<211>  18
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (10)..(10)
```

```
<223>  X is Met or Nle

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>  misc_feature
<222>  (14)..(14)
<223>  X is an Alpha-Helix Stabilizing Residue, Trp or His

<400>  9

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


Ser Val



<210>  10
<211>  17
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Met or Nle
```

```
<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har or Leu

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>  misc_feature
<222>  (14)..(14)
<223>  X is an Alpha-Helix Stabilizing Residue, Trp or His

<400>  10

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


Ser



<210>  11
<211>  16
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is an Alpha-Helix Stabilizing Residue

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Aib, Gln, Deg  or Asn

<220>
<221>  misc_feature
<222>  (10)..(10)
<223>  X is Met or Nle

<220>
<221>  misc_feature
```

```
<222>   (11)..(11)
<223>   X is Har or Leu

<220>
<221>   misc_feature
<222>   (12)..(12)
<223>   X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>   misc_feature
<222>   (14)..(14)
<223>   X is an Alpha-Helix Stabilizing Residue, Trp or His

<400>   11

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu Ala
1               5                   10                  15


<210>   12
<211>   15
<212>   PRT
<213>   Artificial sequence

<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is an Alpha-Helix Stabilizing Residue

<220>
<221>   misc_feature
<222>   (2)..(2)
<223>   X is Bpa

<220>
<221>   misc_feature
<222>   (3)..(3)
<223>   X is an Alpha-Helix Stabilizing Residue

<220>
<221>   misc_feature
<222>   (8)..(8)
<223>   X is Aib, Gln, Deg  or Asn

<220>
<221>   misc_feature
<222>   (10)..(10)
<223>   X is Met or Nle

<220>
<221>   misc_feature
<222>   (11)..(11)
<223>   X is Har or Leu

<220>
<221>   misc_feature
<222>   (12)..(12)
```

```
<223>   X is an Alpha-Helix Stabilizing Residue, Ala or Gly

<220>
<221>   misc_feature
<222>   (14)..(14)
<223>   X is an Alpha-Helix Stabilizing Residue, Trp or His


<400>   12

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Xaa Xaa Xaa Lys Xaa Leu
1               5                   10                  15


<210>   13
<211>   14
<212>   PRT
<213>   Artificial sequence

<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Ac5c

<220>
<221>   misc_feature
<222>   (2)..(2)
<223>   X is Bpa

<220>
<221>   misc_feature
<222>   (3)..(3)
<223>   X is Aib

<220>
<221>   misc_feature
<222>   (11)..(11)
<223>   X is Har

<400>   13

Xaa Xaa Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp
1               5                   10


<210>   14
<211>   15
<212>   PRT
<213>   Artificial sequence

<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Ac5c
```

```
<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Aib

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group


<400>  14

Xaa Val Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15


<210>  15
<211>  16
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is (desNH2)

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Ac5c

<220>
<221>  misc_feature
<222>  (4)..(4)
<223>  X is Aib

<220>
<221>  misc_feature
<222>  (12)..(12)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (16)..(16)
<223>  X is an Amino Group


<400>  15

Xaa Xaa Val Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15
```

<210> 16
<211> 16
<212> PRT
<213> Artificial sequence

<220>
<223> Peptide

<220>
<221> misc_feature
<222> (1)..(1)
<223> X is (desNH2)

<220>
<221> misc_feature
<222> (2)..(2)
<223> X is Aib

<220>
<221> misc_feature
<222> (4)..(4)
<223> X is Aib

<220>
<221> misc_feature
<222> (12)..(12)
<223> X is Har

<220>
<221> misc_feature
<222> (16)..(16)
<223> X is an Amino Group

<400> 16

Xaa Xaa Val Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1   5   10   15

<210> 17
<211> 15
<212> PRT
<213> Artificial sequence

<220>
<223> Peptide

<220>
<221> misc_feature
<222> (1)..(1)
<223> X is Ac5c

<220>
<221> misc_feature
<222> (3)..(3)
<223> X is Aib

<220>

```
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group

<400>  17

Xaa Trp Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15


<210>  18
<211>  15
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is Ac5c

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Aib

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group

<400>  18

Xaa Xaa Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15


<210>  19
<211>  15
<212>  PRT
<213>  Artificial sequence

<220>
```

```
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Ac5c


<220>
<221>   misc_feature
<222>   (3)..(3)
<223>   X is Aib


<220>
<221>   misc_feature
<222>   (11)..(11)
<223>   X is Har


<220>
<221>   misc_feature
<222>   (15)..(15)
<223>   X is an Amino Group


<400>   19

Xaa Arg Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15


<210>   20
<211>   15
<212>   PRT
<213>   Artificial sequence

<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Deg


<220>
<221>   misc_feature
<222>   (3)..(3)
<223>   X is Deg


<220>
<221>   misc_feature
<222>   (11)..(11)
<223>   X is Har


<220>
<221>   misc_feature
<222>   (15)..(15)
<223>   X is an Amino Group


<400>   20

Xaa Val Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
```

```
<210>  21
<211>  15
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is Deg

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Deg

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group

<400>  21

Xaa Trp Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                       10                      15


<210>  22
<211>  15
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is Deg

<220>
<221>  misc_feature
<222>  (2)..(2)
<223>  X is Bpa

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Deg
```

```
<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group

<400>  22

Xaa Xaa Xaa Glu Ile Gln Leu Met His Gln Xaa Ala Lys Trp Xaa
1               5                   10                  15


<210>  23
<211>  15
<212>  PRT
<213>  Artificial sequence

<220>
<223>  Peptide


<220>
<221>  misc_feature
<222>  (1)..(1)
<223>  X is Ac5c

<220>
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Aib

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Nle

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (15)..(15)
<223>  X is an Amino Group

<400>  23

Xaa Trp Xaa Glu Ile Gln Leu Xaa His Gln Xaa Ala Lys Tyr Xaa
1               5                   10                  15


<210>  24
<211>  15
<212>  PRT
<213>  Artificial sequence
```

```
<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Ac5c

<220>
<221>   misc_feature
<222>   (2)..(2)
<223>   X is Bpa

<220>
<221>   misc_feature
<222>   (3)..(3)
<223>   X is Aib

<220>
<221>   misc_feature
<222>   (8)..(8)
<223>   X is Nle

<220>
<221>   misc_feature
<222>   (11)..(11)
<223>   X is Har

<220>
<221>   misc_feature
<222>   (15)..(15)
<223>   X is an Amino Group

<400>   24

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Gln Xaa Ala Lys Tyr Xaa
1               5                   10                  15


<210>   25
<211>   22
<212>   PRT
<213>   Artificial sequence

<220>
<223>   Peptide


<220>
<221>   misc_feature
<222>   (1)..(1)
<223>   X is Deg

<220>
<221>   misc_feature
<222>   (2)..(2)
<223>   X is Bpa

<220>
```

```
<221>  misc_feature
<222>  (3)..(3)
<223>  X is Deg

<220>
<221>  misc_feature
<222>  (8)..(8)
<223>  X is Nle

<220>
<221>  misc_feature
<222>  (11)..(11)
<223>  X is Har

<220>
<221>  misc_feature
<222>  (22)..(22)
<223>  X is an Amino Group

<400>  25

Xaa Xaa Xaa Glu Ile Gln Leu Xaa His Gln Xaa Ala Lys Trp Leu Ala
1                   5                   10                  15


Ser Val Arg Arg Tyr Xaa
            20


<210>  26
<211>  21
<212>  PRT
<213>  Artificial sequence

<220>
<223>  native human PTH(1-21) peptide

<400>  26

Ser Val Ser Glu Ile Gln Leu Met His Asn Leu Gly Lys His Leu Asn
1                   5                   10                  15


Ser Met Glu Arg Val
            20


<210>  27
<211>  21
<212>  PRT
<213>  Artificial sequence

<220>
<223>  native rat PTH (1-21)

<400>  27

Ala Val Ser Glu Ile Gln Leu Met His Asn Leu Gly Lys His Leu Ala
1                   5                   10                  15
```

Ser Val Glu Arg Met
        20